

the risk of a broken display. Drop durability may of course depend on the drop direction and on how the device is constructed.

[0060] Features as described herein seek to segment the suspension of a panel speaker in a device that has a display as part of the speaker. The suspension may be softer only in the areas where soft suspension is need due to better performance, and the suspension may be harder in the areas where softer suspension would not bring significant audio performance benefits. The harder suspension, however, brings a better quality feeling about the device by the user. Alternatively or additionally the performance improvement, the softer segment may be used to make the actuator **75** smaller and more affordable.

[0061] Best audio quality for a display panel speaker can be reached by “pistonic” movement of the whole front area of the display stack. However, features as described herein intentionally do not provided “pistonic” movement for the whole front area of the audio display **14**. Instead, because of the segmented soft/hard suspension connection of the cover window **80** to the frame **12**, a non-pistonic movement of the whole front area of the display stack is provided. The area **90** may move similar to pistonic, but the segmented soft/hard connection **82** allows the first end **15** to move more freely than the opposite second end **17**. Features as described herein provide intentional dampening of a certain limited amount of suspension area, and a different area having less dampening. With features as described herein stiffer suspension in the area where it does not significantly negatively impact audio reproduction may be provided. The stiffer suspension provides a better quality feeling about the device by the user; feeling more solid. The softer suspension is only provided in the area where better audio reproduction is needed; at the end **15** having the area **90** for earpiece functionality. Features as described herein may provide segmented suspension in a device that has an actuator or actuators only in one first end of the device having the area **90** for earpiece functionality. Thus, stiffer suspension may be provided in the opposite other end that does not have an actuator, and perhaps middle. For a device that aims to have a pistonic movement of the whole display stack segment suspension as described herein would not provided.

[0062] An example embodiment may be provided in an apparatus comprising a frame; and a speaker connected to the frame, where the speaker comprises at one vibrating element and at least one display element comprising a window, where the at least one vibrating element is configured to at least partially move the at least one display element to generate sound waves from the at least one display element, where a connection of the speaker to the frame comprises a first section at a first location of the window and a different second section at a second location of the window, where the first section comprises a soft suspension of the window on the frame, where the second section comprises a harder suspension of the window on the frame than the first section, and where the at least one vibrating element is spaced from the second location of the window and located proximate the window at only the first location of the window. In different example embodiments the display module **14** itself, or the display window **80**, or both, and/or a plate mechanically coupled to the display module (where the plate is actuated by said vibrating element) may configured to be moved by the at least one vibrating element. The first and second sections may at least partially overlap along the length of the outer perim-

eter of the window. More than two different suspension connection sections may be provided along the perimeter of the front window.

[0063] The first section may comprise a material which is more resilient than a material of the second section. The first section may comprise a material which is more soft than a material of the second section. The soft suspension of the window on the frame at the first section may comprise a free floating suspension of at least a portion of the first end of the window on the frame. The hard suspension of the window on the frame at the second section may comprise a stationary fixed connection of at least a portion of the second and of the window on the frame. The connection may comprise a first material forming the first section and a different second material forming the second section. The first section may comprise at least two portions along its length where each portion has a different resilience. The first section and/or the second section may bond the window to the frame. The first section of the connection may comprise at least one of urethane, elastomer, Thermoplastic elastomer (TPE), Thermoplastic polyurethane (TPU), silicon or rubber. The second section of the connection may comprise at least one of pressure sensitive adhesive tape, liquid glue or hot melt glue.

[0064] An example embodiment may be provided in an apparatus comprising a frame; a speaker comprising at least one vibrating element and at least one display element comprising a window, where the at least one vibrating element is configured to at least partially move the at least one display element to generate sound waves from the at least one display element; and a connector connecting the window to the frame. The connector may have a first section at a first location of the window and a different second section at a second location of the window, where the first section is more resilient than the second section, and where the at least one vibrating element is spaced from the second location of the window and located proximate the window at only the first location of the window.

[0065] The connector may comprise a gasket or suspension part or suspension module and, as used herein, these terms may be considered interchangeable in some example embodiments. The connector may comprise a first material forming the first section and a different second material forming the second section. The first section may comprise at least two portions along its length where each portion has a different resilience. The first section and/or the second section may bond the window to the frame. The first section of the connector may comprise at least one of urethane, elastomer, Thermoplastic elastomer (TPE), Thermoplastic polyurethane (TPU), silicon or rubber. The second section of the connector may comprise at least one of pressure sensitive adhesive tape, liquid glue or hot melt glue. The first section of the connector may be harder than the second section of the connector. The first section and the second section may be designed as a single part. However, an alternative embodiments, the first and second sections may be separate parts which may be joint/assembled together. In some example embodiments, the dimensions of the first and second sections may be different. For example, the section away from the vibrating element could have larger thickness. In some example embodiments, the profile (cross section area) of the first section could be different from the profile of the second section. More than two sections may also be provided.

[0066] An example method may comprise connecting a speaker to a frame by a connection, where the speaker com-